

BUILDING AN ETHIC

EVOLUTION OF HOME-BASED STRATEGIES FOR RESIDENTIAL ORGANICS

A massive education program in backyard composting and grasscycling has achieved dramatic diversion results in Seattle. The future holds the promise of participation by more of the populace.

Carl Woestwin

COMMUNITY gardens made a strong beginning in the mid 1970s, and the idea of some degree of urban self-sufficiency was intriguing to many people. A new organization called Seattle Tilth Association held its first educational activity in 1978 - a two day conference on urban agriculture featuring Bill and Helga Olkowski, authors of *The City People's Guide to Composting* and now co-directors of the Biointegral Resource Center in Berkeley, California.

By 1982, Seattle Tilth had set up an urban gardening demonstration site with a community garden, solar greenhouse, fruit and vegetable gardening demonstrations, and an active calendar of educational activities. The Seattle Solid Waste Utility funded construction of one of five neighborhood composting sites at the Tilth garden. The idea was for neighbors to bring their compostables to the site and for a volunteer coordinator to manage the composting of those materials - a pretty unworkable scheme that did not last for long, basically overwhelming the volunteer. Even though it wasn't a viable scheme for getting a lot of compostables out of the waste stream, the large regularly turned piles provided an excellent education in active thermophilic composting for many people visiting the garden.

In 1985, the Solid Waste Utility awarded a contract for the nation's first Master Composter program to Seattle Tilth. The program received immediate attention from the Seattle media, and that exposure helped it flourish. Tilth still contracts with what is now Seattle Public Utilities and held the 12th annual training of Master Composters in March 1998. Since the beginning, there always have been many more applicants than there are openings. The program also has been used as a model by over 100 other municipalities and solid waste districts around the country.

Tilth manages two composting demonstration sites and a Compost Hotline. In the early 1990s, the Compost Hotline received as many as 12,000 requests for composting information per year. The numbers have tapered downward in the past few years, but the Hotline is still a very active source of information.

BIN DISTRIBUTION

In 1990, the Solid Waste Utility began distributing compost bins to Seattle residents. Within two years, over 20,000 backyard composters had been distributed. Compost trainers visited a large number of homes to provide one-on-one assistance with bin setup and advice on how to handle specific yard and food residuals.

We decided that composting was an activity that really required a lot of information for people to be successful, so we have tried to keep the level of information high on the program. To date, over 6,500 households have received one or more food residuals composters, over 36,000 households have received one or more yard trimmings composters, and over 60,000 households report that they are composting. Composting has become a discretionary activity in which more than 43 percent of single family to four-plex households participate, (a high number given the complexity of the activity). Over 10,000 residents have been educated in their own yards; more than 5,000 residents have attended a free workshop at one of the central sites; and Master Composters have had over 100,000 educational contacts with residents. The Compost Hotline has answered 80,000 calls and over 100,000 questions, so there has been a massive amount of information going out into the community.

In 1995, the utility strategy for distributing bins shifted to organizing events in neighborhoods throughout the city at which residents would purchase the compost bin and take part a

free - but mandatory - workshop. This year (1998), in line with phasing down our composting outreach activity, we will return to composting education being optional to those who purchase a bin.

GRASSCYCLING

In 1994, grass recycling became the next important focus on the organics stream and the Solid Waste Utility performed mulch mower trials at the Center for Urban Horticulture to find out how well mulch mowers performed under our particular climate conditions. A push mower, standard rotary mower, different blade retrofit options, and a variety of dedicated mulch mowers (low end gas, midprice gas and electric rechargeables) were tested. In 1995, we tested more rechargeables.

Among the things discovered with those trials was that mulch mowing can take as much as 500 pounds of yard trimmings out of the waste stream per thousand square feet of irrigated lawn. Additionally, fertilization and irrigation practices significantly affect the amount of grass clippings produced. For instance, if people water their lawns during the dry summer season, that activity alone will almost double the amount of grass clippings - just for that two month dry period. Fertilization has a similar effect.

When the amount of trimmings observed was verified, we realized that perhaps we had started in the wrong place in terms of diversion potential. If we were to do it again, we probably would start with grasscycling because this is an area where the gains are enormous and the complexity of

the activity is actually very minor. With just minor alterations of current behaviors, people can get a great deal of material out of the waste stream.

For Seattle's waste stream alone, we could be diverting about 1,900 more tons of yard trimmings in a normal year if only 8,500 more people (10 percent of the 85,000 who subscribe to curbside collection of yardwaste) just left their mowing material on the lawn. In a wet year it would be closer to 2,350 tons. With these figures in mind, Seattle Public Utilities, in cooperation with 16 other public agencies in the region, sponsored four mulch mower truckload sales this spring. We focused on electric mulch mowers for their air and noise pollution-reducing advantages, in addition to their diversion potential. Local television stations loved this story, and what seemed an ambitious goal of 3,000 mower sales mushroomed into nearly 5,000 sales.

BARRIERS TO IMPLEMENTATION

While backyard composting always will, be attractive to some residents, it is very involved and people who do it largely tend to be gardeners. On the other hand, grasscycling could simply become a part of our regional ethic adopted by a wider populace much like recycling.

We're not there yet, however, and there are some barriers. First, not enough mulch mowers are on sale locally and so not many people have the equipment to do it properly. Secondly, people are afraid that the look of their lawns will

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MULCH MOWING

Grasscycling, or mulch mowing, proved to be easy and convenient - as well as a time saver, as shown by time-and-motion studies done in Texas. Even though rapid spring growth of the lawn may sometimes require more frequent mowing, or mowing twice, residents still save time over emptying the mower bag (or raking) and hauling clippings to the curb for pickup.

We tested retrofit "mulching" blades for standard mowers, which are widely sold here in Seattle, but found that they performed little better than a sharp standard mower blade. Standard power and push mowers grasscycled reasonably well, but they do leave the clippings scattered on the surface, and perform poorly in wet conditions. The real standout from our equipment trials were the dedicated mulching mowers, both gas and electric models. The best of these mowers recirculate the clippings, chop them very finely, and blow the resulting mulch down into the lawn. They can do this even under wet conditions, which is important in our climate. The surface is left as clean as if a bagging lawn mower had been used, so there are no clippings to see or to track into

the house (a major consumer concern with grasscycling). And best of all, the waste has been transformed into a valuable resource: studies show that grasscycling can replace up to one-half of the lawn's fertilizer needs (which can also help reduce fertilizer runoff into our streams).

In 1996, we worked with over 20 Toro dealers in the Seattle-King County area on mulching mower rebates. Last year we worked with Eagle Hardware & Garden to discount the Black & Decker rechargeable, battery operated electric mulch mower. This year, Toro, Lawn Boy, and Ryobi cooperated in discounting their electric mulchers at our mower discount events. In urban areas, the electric mulch mowers make the most sense: they are quiet, nonpolluting, easy to operate, can mow a quarter-acre or more on a charge, and the best of them grasscycle very well, ensuring customer satisfaction. Electric mulch mowers look like the future of environmentally sound technology to us, and residents of the Puget Sound area seem to feel the same way, once they learn about them.

CHARACTERIZATION OF CANADIAN BACKYARD COMPOSTS

RECENTLY small-scale backyard composting has been actively promoted by many municipalities to reduce residential refuse at the source. For example, almost 1.2 million backyard composters were distributed by Canadian municipalities through the end of 1995. To address the lack of scientific information about composts produced with backyard systems, researchers from the Pacific Forestry Centre in British Columbia, the University of California Berkeley and McMaster University in Ontario conducted a study to characterize backyard composts in Canada. Caroline Preston, Barbara Cade-Menun and Brian Sayer asked composters from British Columbia and Ontario, Newfoundland to send samples of mature composts that were generated using various of management practices. Eight backyard compost samples (plus two others from a

municipal yard trimmings composting operation) were analyzed for a number of parameters and characterized with Solid-state ^{13}C nuclear magnetic resonance spectroscopy (CPMAS NMR).

According to the researchers, the physical state of the composts showed great differences. Most were a mixture of fine, dark, crumbly material, mixed with larger fragments of recognizable plant parts. "This study of operating systems confirms that backyard composting is effective, with substantial carbon loss and transformation of the plant inputs," they write. "It does take longer than most municipal and industrial-scale composting and the time scale was generally one to two years for the samples in this study. ...Satisfactory results were obtained with a variety of enclosures and management systems. ...In our study, most operators turned

their composts occasionally (once or twice per year) or not at all, and did not report problems with odors, rats or flies. ...While this was an exploratory study of necessity limited to a few samples, it confirms the effectiveness of backyard composting with several simple management regimes. The mature composts had chemical properties similar to those produced on a larger scale. The results are consistent with the anecdotal evidence that the product should function as a source of nutrients and stabilized organic matter for the soil."

A full report - "Characterization of Canadian backyard composts: chemical analysis and ^{13}C CPMAS and ^{31}P NMR spectroscopy" - is scheduled for publication in an upcoming 1998 issue of *Compost Science & Utilization*, 419 State Ave, Emmaus, PA 18049. (610) 967-4135. Email: biocycle@aol.com.

suffer if they grasscycle. That fear is based perhaps, on talking to a neighbor who tried it ten years ago when the mowers were not as good; or somebody who bought a retrofit blade for \$8 and expected the world, or just someone who uses a regular mower, leaves the clippings on the lawn and calls that grasscycling while expecting the yard to look the same as when they bagged the trimmings.

Third, there is a lack of information about, mulch mowing techniques in general regarding cutting heights, fertilization, watering, and so on. Fourth, there is a large misperception that mulch mowing will cause thatch, which has no validity. Grasscycling does not cause thatch - it is just adding organic matter to the soil. Thatch is another thing entirely. A fifth small barrier is the periodic need for more frequent mowing or double mowing of the lawn, especially during rapid spring growth.

NATURAL LAWN CARE PROGRAM

As another solution, many people currently recognize that the typical urban or suburban lawn can waste valuable resources. Water, fertilizer and pesticides go into maintaining a green lawn that produces large amounts of problematic grass clippings. Motivated by the broader mission of Seattle Public Utilities - which now deals with water conservation, drainage and wastewater issues, as well as solid waste management - we created the Natural Lawn Care program with our partner agency, King County Water and Land Resource Division. Its objective is to take a broad brush approach to changing lawn care

habits. The program shows how grasscycling, reduced use of soluble fertilizers and pesticides and moderate use of water can create a healthy lawn ecosystem that is much easier on the environment and safer for the people in that environment.

This year, market research indicated that our target audience for this message consists mostly of middle-aged (30 to 65 age range), suburban and urban males. As this effort is becoming regional, we were able to purchase time for a 30-second TV spot that will go to audiences watching Seattle Mariner baseball games. It would be hard to get to our target audience in a better way. The ads use a talking salmon and water protection as a theme, which is timely in light of the proposed endangered species listing of chinook salmon in our region. A mix of radio advertising also is planned for this year.

A great deal of interagency cooperation has gone into creating a coherent message that can be accepted by all the parties. Cooperation leverages agency monies and helps smaller agencies that are working with smaller budgets. It also creates an integrated message that avoids confusion for residents. In terms of organics management, we have come a long way in the past 20 years. Over the next 20 years, my hope is that we will continue to have high participation in composting and that natural lawn care - including grasscycling - will become a regional ethic embraced by most people in the area.

Mulch mowing can take as much as 500 pounds of yard trimmings out of the waste stream per thousand square feet of irrigated lawn. Additionally, fertilization and irrigation practices significantly affect the amount of grass clippings produced.

Carl Woestwin is with Seattle Public Utilities. This article is based on his presentation at the BioCycle West Coast Conference '98 in Seattle.